



[6450-01-P]

U.S. DEPARTMENT OF ENERGY

Draft Outline for the proposed Joint U.S.-Canadian Electric Grid Strategy

AGENCY: Office of Electricity Delivery and Energy Reliability, Department of Energy.

ACTION: Notice of request for public comment.

SUMMARY: With this notice, the U.S. Department of Energy (DOE) seeks public comment on the proposed content and scope of the Joint U.S.-Canadian Electric Grid Strategy as indicated by the draft outline presented here.

DOE seeks public comment including the following: 1) suggestions for how best to describe the cyber and physical risks to electric grid systems, as well as ways to address and mitigate those risks; 2) suggestions for ensuring that the outlined strategic goals and objectives are at the appropriate level for a joint U.S.-Canadian strategy; 3) suggestions for actions under the proposed joint strategy that Federal departments and agencies should take to make the grid more secure and resilient; 4) suggestions for new ways to secure the future grid across North America, as outlined in the final section; and 5) suggestions for timelines to use when considering future planning and investment opportunities.

Supplementary background information, additional details, and instructions for submitting comments can be found below.

DATES: Comments must be received on or before **[INSERT DATE 21 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Comments can be submitted by either of the following methods and must be identified as “Joint Strategy.” By email: jointgridstrategy@hq.doe.gov. Include “Joint Strategy” in subject line of the message. Submitters may enter text or upload files in response to this notice. By mail: Stewart Cedres, Office of Electricity Delivery & Energy Reliability, U.S. Department of Energy, Forrestal Building, Room 6E-092, 1000 Independence Avenue, SW, Washington, DC 20585. Note: Delivery of the U.S. Postal Service mail to DOE may be delayed by several weeks due to security screening. DOE, therefore, encourages those wishing to comment to submit comments electronically by e-mail.

Instructions: Response to this Request for Comment is voluntary. Respondents need not reply to all questions or topics; however, they should clearly indicate the question or topic to which they are responding. Responses may be used by the U.S. Government for program planning on a non-attribution basis. DOE therefore requests that no business proprietary information or copyrighted information be submitted in response to this Request for Comment. Please note that the U.S. Government will not pay for response preparation, or for the use of any information contained in the response.

FOR FURTHER INFORMATION CONTACT: Requests for additional information should be directed to Stewart Cedres, Office of Electricity Delivery & Energy Reliability, U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, DC 20585, 202-586-2066, jointgridstrategy@hq.doe.gov.

SUPPLEMENTARY INFORMATION: During the March 2016 visit by Canadian Prime Minister Justin Trudeau, in the "U.S.-Canada Joint Statement on Climate, Energy, and Arctic Leadership," the U.S. and Canada agreed to “[d]evelop a joint U.S.-Canadian strategy for strengthening the security and resilience of the North American electricity grid [and] work together to strengthen the security and resilience of the electric grid, including against the growing threat from cyber-attacks and climate change impacts.” The Departments of Energy and Homeland Security are co-leading an interagency effort, including our Canadian colleagues, to develop this proposed joint strategy.

As a first step, Federal interagency writing teams have developed an outline for the proposed joint strategy that consists of three overarching strategic goals and objectives in support of achieving those goals. The purpose of the draft outline is to give the public an initial view of potential goals, objectives, and actions that could be taken to strengthen the security and resilience of the electric grid. In developing the outline, the writing teams used a "baseline" document consisting of analytical work that supports both the development of this proposed strategy and the next iteration of the Quadrennial Energy Review.

DOE will collate public comments received on the outline. The comments will inform the preparation of the full draft joint strategy and accompanying action plan, which is scheduled to be released in December 2016.

Comments are sought on the proposed overarching outline that will frame the joint strategy. Additional suggestions will be reviewed as they relate to the proposed structure of the document.

Following is a proposed high-level and draft outline intended to guide the scope and content of the Joint U.S.-Canadian Electric Grid Strategy. DOE seeks public comments on all

aspects of this draft outline. The proposed outline is presented here in five parts: (1) Introduction and Context for the Joint U.S.-Canadian Electric Grid Strategy; (2) Goal 1: Protect Today's Grid and Enhance Preparedness; (3) Goal 2: Manage Contingencies and Enhance Response and Recovery; (4) Goal 3: Build a More Secure and Resilient Future Grid; and (5) Conclusion.

1. Introduction and Context for the Joint U.S.-Canadian Electric Grid Strategy

The introductory and context-setting sections of the joint strategy will describe the context for the joint strategy.

2. Goal 1: Protect Today's Grid and Enhance Preparedness

This section will outline opportunities to avoid, deter, and mitigate risks before they impact the grid. This includes information sharing between and among owners, operators, public, private and third-party participants whose protection of critical assets would benefit from actionable threat and hazard information and would provide information utilization for prudent and efficient security investments. This section will also highlight the importance of coordinating ongoing law enforcement, emergency management, reliability coordination, and monitoring and detection activities, the practice of which will improve protection capabilities.

This section will also address the method of preparedness that identifies can't-lose aspects of the system to mitigate the outer limit of tolerable impacts to the grid. This section will address major isolated as well as potentially cascading events that create out-and-out system failure or balloon into major regional or multi-system impacts. This section will examine how to create necessary incentives and investments to engage the protective measures for outlier events. The section will close by examining the electric grid's

interdependencies with other critical systems and functions of the nations' economies and societies. Given our economic and social reliance on electricity, the strategy will identify the importance of securing the grid in the broader context of our joint and domestic national security goals.

- Objective 1. Enhance Information Sharing
 - i. Enhance information sharing between government and industry.
 - ii. Build organizational capacity to improve government, and industry information sharing and support to improve management of risk critical to the success of business mission and goals.
- Objective 2. Develop and Coordinate Existing Forensic and Law Enforcement Capabilities
 - i. Improve tools, processes, and coordination among relevant government entities and industries for monitoring, detecting, analyzing, reporting, defending and mitigating threats to the electric grid.
- Objective 3. Deter Major Isolated and Cascading Events
 - i. Protect critical assets from relevant adversarial, natural, and technological threats to prevent and mitigate power loss and system failure.
 - ii. Develop guiding principles for automatic and manual means of preventing cascading blackouts (System Operations).
- Objective 4. Align Standards, Incentives and Investment with Security Goals
 - i. Align utility incentives for planning and investment with regulatory processes and tools for prudent cost recovery, including tools for security valuation.

- Objective 5. Understand and Mitigate Vulnerabilities from Interdependencies with other Critical Infrastructures
 - i. Mitigate and reduce security risks/vulnerabilities caused by interdependence between grid technologies and other infrastructures, including telecom, water, and natural gas.
 - ii. Identify and manage impacts to other critical societal functions (*e.g.*, defense).

3. Goal 2: Manage Contingencies and Enhance Response and Recovery Efforts

This section will address response and recovery options during and after an incident, examining public and private resources available, including through mutual assistance efforts for physical and cyber capabilities. This section will also highlight the complexity and potential issues with supply chains, which are compounded in an emergency. Finally, this section will highlight the importance of adaptation through recovery and rebuilding efforts, restoring capabilities through smarter, more efficient, and forward-looking solutions.

- Objective 1. Improve Emergency Response and Continuity
 - i. Enhance public and private resources for response to and recovery from major loss-of-power events.
- Objective 2. Develop or Enhance Mutual Assistance for Physical and Cyber Threats
 - i. Foster robust mutual assistance programs for physical grid assets, and develop a cybersecurity mutual assistance program.
- Objective 3. Identify Dependencies and Supply Chain Needs During an Emergency
 - i. Address effects from power outages, such as loss of services.
- Objective 4. Recover and Rebuild

- i. Adapt via recovery to result in more resilient investments, practices and processes.

4. Goal 3: *Build a More Secure and Resilient Future Grid*

The final section of the strategy will take on the challenge and opportunities to adapting through recovery efforts, underscoring the end-goal of grid resilience. The first part of the final section will explore post-incident actions in the context of evolving grid design, technologies, and a changing climate (that is, the potential impact of more frequent and severe natural disasters). The first part of this section will also address the opportunities to develop and advance the deployment of tools and technologies to address the security vulnerabilities addressed in this strategy.

The second part of this final section will outline opportunities to integrate security and resilience into planning, investment, regulatory- and policy-decision making for joint, cross-border security goals. This includes enhancing modeling and risk analysis capabilities to characterize vulnerabilities for decision-making and investments, suggesting ways to align utility and market incentives, and addressing workforce risks and opportunities for evolving technical knowledge needs. Finally, this section will point to the importance of pursuing optimal domestic security goals to coordinate cross-border where possible, and noting where domestic-specific goals do not lend themselves to joint coordination.

- Objective 1. Understand and Manage New and Evolving Risks from Grid Technologies and Grid Design
 - i. Identify, understand, and, to the extent possible, neutralize emerging threats (including through supply chains).

- ii. Ensure that continued integration of grid and IT infrastructures accounts for the security benefits and challenges of that enhanced integration.
 - iii. Meet national security goals in a changing climate and energy landscape
 - Improve preparedness in the context of increased natural disaster intensity and frequency and
 - Integrate security considerations into energy policy making, as well as utility and project planning, design, and implementation.
- Objective 2. Develop and Deploy Security and Resilience Tools and Technologies
 - i. Ensure that the technological and institutional and architectural evolution of the grid enhances security and resilience.
 - ii. Be resilient to, and secure against, a range of grid threats.
 - iii. Coordinate with industry and operator practices to detect and mitigate grid anomalies quickly and effectively.
- Objective 3. Integrate Security and Resilience into Planning, Investment, Regulatory- and Policy-Decision Making, and Coordinate Cross-Border Grid Integration between the United States and Canada
 - i. Enhance modeling and risk analysis capabilities to better characterize grid vulnerabilities, understand impacts of loss-of-power events, and support risk-informed decisions, including investments.
 - ii. Align utility and market participant incentives for planning and investment with regulatory processes and tools for prudent cost recovery, including tools for security valuation.

- iii. Continue to pursue optimal domestic planning, investment, regulatory- and policy-decision making for security and resilience, noting where domestic-specific approach do not lend themselves to joint coordination.
- iv. Address the need to reinforce existing and develop new workforce capabilities.

5. Conclusion

The conclusion of the strategy will summarize major findings and highlight the way forward.

DOE seeks public comments on all of the draft outline sections described above for the Joint U.S.-Canadian Electric Grid Strategy.

Authority: Presidential Policy Directive 21-Critical Infrastructure Security and Resilience (PPD-21), Presidential Policy Directive 8 – National Preparedness (PPD-8), Fixing America’s Surface Transportation (FAST) Act (Pub. L. No. 114-94) and Robert T. Stafford Disaster Relief and Emergency Assistance (Stafford) Act (Pub. L. 93-288) as amended.

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U.S. Department of Energy

Office of Electricity Delivery and Energy Reliability

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